

# SUPERSONIC AIRCRAFT WITH SPIKE FOR CONTROLLING AND REDUCING SONIC BOOM

## Abstract

Method and arrangement for reducing the effects of a sonic boom created by an aerospace vehicle when said vehicle is flown at supersonic speed. The method includes providing the aerospace vehicle with a first spike extending from the nose thereof substantially in the direction of normal flight of the aerospace vehicle, the first spike having a second section aft of a first section that is aft of a leading end portion, the first and second sections having a second transition region therebetween and each of the sections having different cross-sectional areas, the leading end portion of the first spike tapering toward a predetermined cross-section with a first transition region between the predetermined cross-section and the first section. The first transition region is configured so as to reduce the coalescence of shock waves produced by the first spike during normal supersonic flight of the aerospace vehicle. A spike may also be included that extends from the tail of the aerospace vehicle to reduce the coalescence of shock waves pro-

duced by the spike during normal supersonic flight of the aerospace vehicle.